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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,230	12/08/2004	Heiko Sponar	R.301921	2630
2119	7590	08/02/2005	EXAMINER	
RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314			MULLINS, BURTON S	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/517,230	SPONAR ET AL.,	
	Examiner	Art Unit	
	Burton S. Mullins	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Amendment

2. The preliminary amendment filed December 8, 2004 has been entered. Claims 1-10 are canceled and claims 11-30 are added.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11-24 and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Searle (US 4,182,026). Searle teaches an electrical machine with a rotor 80 attached to a shaft 78 and a multi-part stator that has a yoke ring 88 and stator fins (teeth) 90 that delimit winding grooves (not numbered; Fig.10) which winding grooves accommodate windings 32 or winding segments wound around insulator elements (bobbins) 2 (Fig.1), the improvement wherein the stator comprises a number of first wound insulator elements (associated with phase A windings wound about first, fourth, seventh and tenth bobbins; Fig.10; c.6, line 58-c.7, line 15) that are wound one after another with the same first winding wire 30A and a number of second insulator

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elements (associated with phase B windings wound about second, fifth, eighth and eleventh bobbins) at are wound one after another with the same second winding wire. In other words, the three-phase motor of Searle has A-, B- and C-phase coils each comprising a set of bobbins 2 wound by a common conductor 30.

Regarding claims 12-14, the bobbins are ring-shaped and are slid onto teeth 90 which inherently “form-fit” the bobbins.

Regarding claims 15-19, the multi-part stator of Searle comprises hollow, cylindrical yoke (housing) 38 (Fig.4) with individual pole pieces 26 forming the stator parts which, when fastened to the yoke, form a toothed ring concentric to the yoke.

Regarding claims 20-22, the outer edges of the bobbins 2 have channel-like recesses 8A/8B formed between flange 12 and extensions 14/16 for winding the wires 32 (Fig.1).

Regarding claims 23-24, the extensions 14/16 on one side of the bobbins 2 comprise detent projections which permit fastening to the stator poles 26 (Fig.1).

Regarding claims 27-28, Fig.9 shows a brushless three-phase stepper motor embodiment with an excitation circuit board 44 (c.5, lines 26-40; c.7, lines 15-23).

Regarding claims 29-30, the leads of the coils 32 are electrically connected to power supply lines by means of terminal pins 18 and conductors on the printed circuit board 44 (c.7, lines 15-23).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Searle in view of Hertrich (US 4,874,975). Searle does not specifically teach applicant's uniform winding direction. In the embodiment of Fig.10, the winding direction of the brushless dc motor is opposite for sequential poles of each phase. Hertrich, meanwhile, teaches a brushless dc motor wherein all the field pole windings in each phase are wound in the same direction, so that they have the same magnetic polarity when the coils are excited (c.2, lines 10-17). This reduces the number of switches and the voltage drop associated therewith, thereby maximizing efficiency. It would have been obvious to one having ordinary skill to modify Searle's winding arrangement and provide field poles windings wound in the same direction per Hertrich to improve machine efficiency.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029.

The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach

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the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
July 30, 2005